SATELLITE/RADIOSONDE COMPARISON

by

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Colocated measurements of radiosonde and TIROS Operational Vertical Sounder (TOVS) data are compared to determine whether significant latitudinal, seasonal, or instrumental biases exist. Long-wave structure determined by each system is being examined for correlation. Because US radiosonde data are archived uncorrected, an effort to correct the measurements based on the radiative corrections being developed under RTOP 146-71-06 is being considered. These corrections will be applied to 7 years of measurements. New comparisons will then be made using corrected radiosonde and TOVS data. A regression method is used to retrieve temperatures, and radiosonde zonal means are used to update the regression coefficients. Preliminary results of auto-correlation analysis indicate that detection of long-wave structure in each set of data is slightly different with some levels and locations experiencing different wave periods or amplitudes. Scatter diagrams and linear regression for each layer show bias in the mean temperatures. Winter-time measurements show poorer correlations due to noisy measurements.

Studies planned under this RTOP were delayed over 9 months waiting for contract approvals. The contractor began algorithm development in January and plans to have an operational analysis program completed by late April.